

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) An apparatus, comprising:

a die;

a heat spreader mounted adjacent the die;

a buffer layer comprising a film selected from the group consisting of Cr, Mo, Ti, SiC and TiC and wherein the buffer layer also comprises a catalyst for carbon nanotube growth selected from the group consisting of at least one of Co, Fe and Ni formed above a surface of the heat spreader; and

a thermal interface material interposed in a gap between the die and the heat spreader; the thermal interface material comprising an array of carbon nanotubes formed above the buffer layer; and

a further buffer layer of at least one material selected from the group comprising Au and Ag, interposed between the interface material and the die.

2. (Original) The apparatus of claim 1, wherein selected carbon nanotubes of the array of carbon nanotubes are bonded to adjacent carbon nanotubes of the array of carbon nanotubes.

3. - 4. (Canceled)

5. (Original) The apparatus of claim 1, wherein a portion of at least some carbon nanotubes of the array of carbon nanotubes are coated with metal.

6. - 8. (Canceled)

9. (Currently Amended) The apparatus of claim 1, wherein the length of at least some of the carbon nanotubes ~~slightly exceeds the width of the gap~~ are under compression.

10. (Currently Amended) The apparatus of claim 1, wherein free ends of at least some of the carbon nanotubes project from the ~~array of carbon nanotubes thermal intermediate material~~ to embed them in the surface of the heat spreader.

11. (Canceled)

12. (Currently Amended) The apparatus of claim 1 wherein ~~the length of some of the carbon nanotubes exceeds a predetermined~~ the gap between the die and the heat spreader is by a distance established by the height of a spacer inserted in the gap.

13. – 15. (Canceled)

16. (Currently Amended) A computing system, comprising:
a die including a die surface and a circuit;
~~a heat sink; a thermal intermediate interposed between the die surface and the heat sink and having an array of carbon nanotubes and a buffer layer coupled to the array of carbon nanotubes and the heat sink; and~~

~~at least one dynamic random access memory device; and~~
~~a buffer layer comprising a film selected from the group consisting of Cr, Mo, Ti, SiC and TiC, wherein the buffer layer also comprises a catalyst for carbon nanotube growth selected from the group consisting of at least one of Co, Fe and Ni formed above a surface of the heat sink;~~

~~a thermal interface material interposed in a gap between the die and the heat sink; the thermal interface material comprising an array of carbon nanotubes formed above the buffer layer; and~~

~~a further buffer layer of at least one material selected from the group comprising Au and Ag, interposed between the interface material and the die.~~

17. (Currently Amended) The system of claim 16, wherein the circuit comprises a processor that acts upon data signals, ~~and may include, for example, a microprocessor.~~

18. – 29. (Canceled)

30. (Currently Amended) An apparatus, comprising:
a die;
a heat spreader mounted adjacent the die;
a buffer layer comprising a film selected from the group consisting of Cr, Mo, Ti, SiC and TiC and wherein the buffer layer also comprises a catalyst for carbon nanotube growth selected from the group consisting of at least one of Co, Fe and Ni formed on a surface of the heat spreader; and

a thermal interface material interposed in a gap between the die and the heat spreader; the thermal interface material comprising an array of carbon nanotubes formed in contact with the buffer layer; and

a further buffer layer of at least one material selected from the group comprising Au and Ag, interposed between the interface material and the die.

31. (Previously Presented) The apparatus of claim 30, wherein selected carbon nanotubes of the array of carbon nanotubes are bonded to adjacent carbon nanotubes of the array of carbon nanotubes.

32. - 33. (Canceled)

34. (Previously Presented) The apparatus of claim 30, wherein a portion of at least some carbon nanotubes of the array of carbon nanotubes are coated with metal.

35. - 37. (Canceled)

38. (Currently Amended) The apparatus of claim 30, wherein the length of at least some of the carbon nanotubes ~~slightly exceeds the width of the gap~~ are under compression.

39. (Previously Presented) The apparatus of claim 30, wherein free ends of at least some of the carbon nanotubes project from the array of carbon nanotubes to embed them in the surface of the heat spreader.

40. (Canceled)

41. (Currently Amended) The apparatus of claim 30 wherein ~~the length of some of the carbon nanotubes exceeds a predetermined~~ the gap between the die and the heat spreader is by a distance established by the height of a spacer inserted in the gap.

42. (New) The system of claim 17, wherein the processor includes a microprocessor.